

Examiner's Amendment

1. An examiner's amendment to the record is attached to the Office Action. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. James Surber, Reg. 48,381 on 7 April 2009. See attached interview summary.

2. Examiner amends **Claim 1** and cancels **Claims 2-25**. The following claims represent the claims pending in the application.

1. (Currently Amended) A method for placing branch locations comprising the steps of:

(a) submitting geographical information for a plurality of service provider branch locations to a central processing unit of a computer system, wherein said geographical information comprises an exact or approximate location of each of said service provider branch locations;

(b) identifying a plurality of groups of service receivers from a list of service receivers recorded within or accessible by the central processing unit, and instructing the central processing unit to calculate a population number of service receivers within each group of service receivers;

(c) submitting a measure of service receiver value to the central processing unit through the computer system, wherein the measure of service receiver value represents a product of (i) the population number of service receivers within each group of service receivers and (ii) an average income level of the service receivers within each group of service receivers;

(d) instructing the central processing unit to calculate the value of each of said groups of service receivers based on said measure of service receiver value;

(e) instructing the central processing unit to determine which of said service provider branch locations is the closest service provider branch location by average travel time for each of said groups of service receivers using a routing system, wherein the routing system extracts, from a database, drive time information for road segments between each of the service receivers within each group and each of said service provider branch locations;

(f) instructing the central processing unit to calculate a probability value of whether service receivers within each group of services receivers will utilize said closest service provider branch location, wherein said probability value is based upon (i) an average drive time between said service receivers and said closest service provider branch location and (ii) consumer behavior statistics;

(g) instructing the central processing unit to calculate a value of service provider branch network for each service provider branch location, wherein the value of service provider branch network is calculated by summing for each group of service receivers for which each service provider branch location is said closest service provider branch location the products of (i) the value of each group of service receivers as calculated in

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step (d) and (ii) the probability value of whether each group of service receivers will utilize said service provider branch location as calculated in step (f); ~~and~~

(h) instructing the central processing unit to identify the service provider branch location having the highest value of service provider branch network;

(i) defining a probability threshold;

(j) determining the value of service provider branch network for each of said service provider branch locations based only on groups of service receivers having a probability value above said probability threshold;

(k) instructing the central processing unit to discard service provider branch locations having a value of service provider branch network below a threshold value;

(l) instructing the central processing unit to identify a mutated set of service provider branch locations, wherein the mutated set of service provider branch locations have a value of service provider branch network above the threshold value and exclude the service provider branch location having the highest value of service provider branch network;

(m) mutating geographical information for each service provider branch location within the mutated set of service provider branch locations to create modified geographical information, wherein said geographical information consists of a zip code and said mutation step comprises increasing or decreasing the zip code; and

(n) repeating steps (a) through (m) by submitting the modified geographical information to the central processing unit as the geographical information recited in step (a) until a stop criterion is satisfied.

2-25. (Canceled).

26. (Currently Amended) The method of claim 1 ~~25~~, wherein said mutation step comprises increasing or decreasing the zip code by 10%.

***Allowable Subject Matter***

3. **Claims 1 and 26** are allowed.

***Reasons for Allowance***

4. The following is a statement of reasons for the indication of allowable subject matter:

None of the prior art of record, taken individually or in any combination, teach, inter alia,

(a) submitting geographical information for a plurality of service provider branch locations ;

(b) identifying groups of service receivers from a list of service receivers , and calculating a population number of service receivers within each group of service receivers;

(c) submitting a measure of service receiver value which represents a product of (i) the population number of service receivers within each group of service receivers and (ii) an average income level of the service receivers within each group of service receivers;

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(d) calculating the value of the groups of service receivers based on the measure of service receiver value;

(e) determining which of the service provider branch locations is the closest service provider branch location by average travel time for each of said groups of service receivers according to drive time information for road segments between each of the service receivers within each group and each of the service provider branch locations;

(f) calculating a probability value of whether service receivers within each group of services receivers will utilize the closest service provider branch location, where this probability value is based upon (i) an average drive time between said service receivers and said closest service provider branch location and (ii) consumer behavior statistics;

(g) calculating a value of the service provider branch network for each service provider branch location, by summing for each group of service receivers for which each service provider branch location is the closest service provider branch location the products of (i) the value of each group of service receivers as calculated in step (d) and (ii) the probability value of whether each group of service receivers will utilize said service provider branch location as calculated in step (f);

(h) instructing the central processing unit to identify the service provider branch location having the highest value of service provider branch network;

(i) defining a probability threshold;

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(j) determining the value of service provider branch network for each of said service provider branch locations based only on groups of service receivers having a probability value above said probability threshold;

(k) instructing the central processing unit to discard service provider branch locations having a value of service provider branch network below a threshold value;

(l) instructing the central processing unit to identify a mutated set of service provider branch locations, wherein the mutated set of service provider branch locations have a value of service provider branch network above the threshold value and exclude the service provider branch location having the highest value of service provider branch network;

(m) mutating geographical information for each service provider branch location within the mutated set of service provider branch locations to create modified geographical information, wherein the geographical information consists of a zip code and the mutation step comprises increasing or decreasing the zip code; and

(n) repeating steps (a) through (m) by submitting the modified geographical information to the central processing unit as the geographical information recited in step (a) until a stop criterion is satisfied.

as recited in independent **Claim 1**.

The prior art reference most closely resembling the applicants claimed

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invention is **Shmoys**

**Shmoys** discloses using genetic algorithms to determine facility location and

identifying at least one service provider branch location;

identifying at least one service receiver;

identifying a measure of service receiver value;

calculating the value of each of said service receivers based on said measure of service receiver value; .

determining which of said service provider branch locations is the closest service provider branch location by travel time for each of said service receivers;

determining a travel time between each of said service receivers and one or more of said service provider branch locations; and .

for each of said service receivers, defining the service provider branch location with the shortest travel time as the closest service provider branch location for said service receiver

determining a value for each of said service provider branch locations

summing for each service receiver for which said service provider branch location is said closest service provider branch location the products of (i) said value of said closest service receiver and (ii) said probability that said closest service receiver will utilize said service provider branch location

determining the value of the service provider branch network

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optimizing the solution using a genetic algorithm approach, i.e. a mutation approach by mutating a number of service provider locations to determine the effect on the network value.

In the algorithm using a fitness parameter to measure algorithm progress.

However, while Shmoys suggests using a probabilistic analysis to determine where a service receiver will go to a branch location, Shmoys fails to teach using a probability based on travel time and customer behavior statistics, as is recited in claim 1.

Additionally, while Shmoys suggests the use of genetic algorithms, Shmoys does not teach how to converge the algorithm through mutation nor by mutating possible solutions geographically. Even though Shmoys' disclosure is about the geographic location of facilities, Shmoys does not mention iteration of the facilities along geographical lines, much less doing so by using increasing or decreasing zip codes, as is recited in claim 1.

Also while Shmoys teaches the progress made with the algorithm being asymptotically tight, i.e. the algorithm approaches a limitation, Shmoys does not explicitly teach a stop criterion, i.e. a limitation of stopping the algorithm at a specific point (i.e. a number of iterations), as is recited in claim 1.

The examiner's position regarding the previous 101 rejections is that Claim 1 is statutory by reciting a tie to a particular statutory class.



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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on 571-272-6737.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS

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Primary Examiner, Art Unit 3623